sanitary conditions upon which to base their executive actions. It offers all the advantages to our state department which Massachusetts urges for her fifteen state medical inspectors.

Thirdly—*Let us work for better co-ordination in our public health educational work.* We should encourage this movement in the public schools. The teachers should be invited to use their local health officer as special lecturer if he can lecture, or better still, if he can not, he may be used as demonstration assistant. Any health officer in this association would be willing to take his oil-immersion microscope and some cultures to the neighboring high school and demonstrate our great infectious disease foes. The inspiration which comes to both teacher and student through such kindness well repays the physician for his time. Dr. Browning has done these things for Los Angeles County for years. Dr. Langdon is doing them for Stockton now. Among the most effective sanitary exhibits, which I saw along the Atlantic Coast this past summer, was one of milk utensils condemned by Mr. Jordan of the Boston municipal department. Every health officer is repeatedly chancing on such instructive objects of insanitary conditions. If these were collected or photographed and properly arranged in a neighboring high school museum of public health, their influence would be most valuable.

These are helps; but our great educational returns for the immediate future would come through the centralization of educational work in all the phases of public health through official representation in this association. Dr. Pottenger with his associates is striving to establish a strong anti-tuberculosis society. Dr. Fulton of the International Congress which will meet in Washington next year is asking us what we will do as a state in the way of an exhibit. Dr. Farrand the national secretary is trying to see signs of a permanent tuberculosis organization in these initial stirrings. Dr. Prince A. Morrow is hoping some strong executive will develop here a branch of the long-needed society for combatting venereal diseases. The founders of the Public Health Defense League are asking support of their effort to bring these various organizations together all over the United States. The committee of one hundred, under Dr. Fischer's guidance, is developing a powerful machine for public health education in America. We need all these movements, but they should be placed before the public in well balanced relations. Our citizens should not be permitted one month to believe that tuberculosis is the only disease requiring serious public consideration, and the next month to become panic stricken over syphilis, only to become indifferent to both in the third month.

I believe that this association could profitably establish a system of official delegates from all organizations interesting themselves in personal hygiene and sanitation in California now and in the future, and that these delegates could select an executive committee representing the various types of organizations—(1) those combatting infectious diseases, (2) those working for better housing and sanitary conditions for our poor, (3) those working for the purity of our streams, etc., (4) those working for physical training advancement, etc., (5) those working for legislative enactments, etc., the duties of which executive committee would be to co-ordinate the active work of the different associations in the various districts of the state.

The California Pure Food Commission could then be elaborated into a public health commission prepared to determine by actual investigation, or otherwise, the soundness and the authenticity of all facts or measures advocated by the various societies in their campaigns, and to provide permanent section bibliographies with a complete cross index system. These together with similar index records of educational work actually in progress would constitute the keystone of our organized efforts. These are not original ideas. They are not impractical. The National Civic Federation has tried such methods in its welfare department with marked success. The Public Health Defense League advocates similar plans, and invites the co-operation of every state in developing a national organization. It is for us to adapt the good in such movements to our own conditions.

I propose this outline for the consideration of the association not as the letter, but as the spirit of the public health organization which the California State Medical Society hopes to see developed. Should these suggestions receive general approval, I am prepared to move the appointment of a committee to seriously investigate by correspondence with existing societies and otherwise, the feasibility of such a plan, and to report at the next meeting of the association.

It has not been my purpose to suggest more than a sub-surface organization. I would regret to see any deviation from the cordial informality which has always marked these gatherings of this association. The caucusing of official delegates would be a sorry exchange for this delightful hospitality of Dr. Clark and his Woodland neighbors.

(1.) "Law, the Foundation of State Medicine." Samuel G. Dixon, Commissioner of Health of Commonwealth of Pennsylvania.
(2.) Commissioner Porter—address, 6th annual conference, Sanitary Officers of New York.
(3.) Dixon, p. 9.
(4.) California State Journal of Medicine, Vol. V, No. 10.
(5.) "The Prevention of Infectious Diseases," John C. McVail. McMillan Co., '07.
(6.) Vol. I, 1906. Transactions of the American Society of Sanitary and Moral Prophylaxis. The writer of this paper knows fro mconversations with Dr. Morrow that the alterations in quotation would be concurred in, as applying to a broader phase of the subject, than those under discussion at that time.

GASTROENTEROSTOMY, WITH A REPORT OF ELEVEN CASES.*

By W. A. CLARK, M. D., San Leandro.

It seems rather preposterous to bring the subject of gastroenterostomy before the Society with a limited number of cases to report when our masters in other sections of the country are reporting their hundreds. But the uniform good results obtained in this class of sufferers, many of whom had begun to believe that life was hardly worth living, and that in some instances we have overlooked

*Read before the Alameda County Society.

our hand, as in two of our cases reported in this paper, impels me to crave your indulgence in reporting the results of the cases which my associate, Daniel Crosby, and myself have had in this line during the past year at the Infirmary and in our private work.

The technic of the operation will not be dwelt on in this paper, as it is a subject upon which you all are undoubtedly familiar; but the symptoms leading one to advise a patient to submit to this operation are worthy of note and I believe that they will bear an extended discussion from you gentlemen this evening.

Gastroenterostomy is essentially a drainage operation and at the present time is undertaken for the relief of those distressing symptoms which are caused by gastric ulcer and cancer, contraction of the pylorus, as a result of disease or trauma, which interferes with the proper emptying of the stomach contents, hour-glass contraction, prolapse of the stomach, ulcer of the duodenum, and also contraction and kinks of the first portion of the bowel.

Chronic ulcer of the stomach and duodenum follows nutritional disturbances of a limited area of the mucosa, which results in the destruction of this circumscribed region by the gastric juice. The cause giving rise to this condition which permits the gastric juice to become a destructive agent, is not clear. It is possible that thrombosis or embolism following vascular disease may be a cause, yet it is true that in the majority of cases this condition is not present.

Hyperacidity with or without stagnation is commonly coincident with ulcer, but as a cause or an effect it is not known. Chlorosis has also been considered in the etiology of gastric ulcer.

The evidence that central or pneumogastric nerve disease is a predisposing cause is not conclusive. Trauma alone can hardly produce an ulcer, as it is a well-known fact that ulcers of the mucous membrane heal readily.

Irritation from the decomposition of retained stomach contents undoubtedly is a factor, especially when associated with bacterial infection. This infection may so reduce the resistance of the tissue cells as to render them liable to digestion by the gastric juice.

To sum up our present knowledge of the causes of gastric and duodenal ulcer, according to Billings, is that the gastric juice is the active agent in its production in a limited area, and that this occurs because of a nutritional disturbance in a circumscribed region of the mucosa. That the nutritional disturbance may be brought about by bacterial infection associated with local trauma, and that vascular disease, local areas of muscular spasm, gastric stagnation and anemia may all serve as factors in certain instances.

It is now quite generally conceded by those who are doing considerable stomach surgery, that gastric cancer has an old ulcer for a base, Graham even going so far as to say that the fourth stage of gastric ulcer is cancer. Contraction of the pylorus may be chronic or due to the thickening and contraction incident to chronic ulcer or cancer. In gastric ulcer we have, as a general rule, a long train of symptoms commonly called dyspepsia and which have existed for a considerable period with frequent intervals during which the patient has felt quite well. These symptoms in a classic case would be pain rather localized in the region of the stomach aggravated by pressure and food; hemorrhage and some evidence of motor insufficiency. Yet in the cases reported here to-night these classic symptoms are quite conspicuously absent. The majority of our patients have been complaining of indigestion for varying periods of time with intervals when the patient would feel quite well, these periods often being coincident with medical treatment as in three of our own cases. The pain, which comes on shortly after the ingestion of food, varies from a simple distress to one which is quite sharp and is only relieved by vomiting or after digestion is complete and the food has left the stomach. This condition is frequently termed neuralgia of the stomach.

The pain when characteristic is peculiar in its distribution, for it radiates from the epigastrium back to the shoulder blade and the spine. Associated with the pain and tenderness there is often vomiting of a very acid fluid and an examination of the gastric contents often shows an excess of hydrochloric acid both as to percentage and actual quantity. Constipation and diminished urine are usually present.

In other cases there may develop, with great suddenness, a profuse hematemesis, or symptoms of collapse from perforation, and one of these accidents may be the first symptom of any importance. Such was the writer's experience in a recent case in which the patient died about ten minutes after arriving at the house, and on autopsy, a perforation admitting two fingers was found in the anterior stomach wall near the pylorus. Careful questioning of the family elicited nothing but that the patient had had "dyspepsia for several years."

In other instances there is a general failure of health, emaciation and a development of profound anemia. In still others violent neuralgic pains are the chief manifestations and lead to the erroneous diagnosis of neuralgia of the stomach. In some instances the disease lasts but a few weeks; in others it is prolonged for years.

Chronic ulcer as a rule presents no other history except a gastric distress which may have existed for years. In fact, the symptoms may be entirely those of gastric dilatation or of pyloric stenosis. The patient is emaciated by reason of voluntary starvation to gain comfort, and by the loss of food by vomiting.

Hematemesis and melena, which are so frequently spoken of by many authors, have occurred in only two of our cases. The vomited blood is usually dark in color, acid in reaction and is clotted. When passed by the bowel it is tar-like in character. Occult blood may be detected in the stomach contents and in the stools from all patients who suffer from ulcer of the stomach.

Hyperchlorhydria is present in the majority of

cases of ulcer of the stomach and duodenum, but in our later cases we are not using the stomach analysis.

Duodenal ulcer is often associated with gastric ulcer and occurs in about 40 per cent of cases. We have about the same symptoms, with exception that the pain comes on some time after eating and is relieved by the ingestion of food. Ulcer of both the pylorus and duodenum may cause considerable stricture, when we then have added the symptoms of stagnation and obstruction. The ulcer is usually situated in the first four inches of the duodenum and may be just within the sphincter muscle of the pylorus itself as in one of our cases. Hematemesis seldom occurs from ulcer in this region.

Chronic ulcers of the stomach usually occupy the pyloric half of the organ and the larger number are situated on the posterior wall when we frequently obtain a Head zone to the right of the median line, and to the left if on the anterior wall. Ulcers may be of the indurated or non-indurated type, and when of the latter variety are usually not demonstrable at the time of the operation. In this type the diagnosis being confirmed by the clearing up of all the symptoms after operation.

In carcinoma of the stomach we have the same symptoms as ulcer, but in addition we have progressive anemia, cachexia, decomposing stomach contents, dilatation of the stomach, frequently the vomiting at times of material from several meals containing lactic acid, and the Oppler-Boas bacillus, and still later a palpable tumor in the pyloric region.

Gastric or duodenal ulcer or cancer is so frequently present in some cases that no difficulty is experienced in making a diagnosis. Care must be taken that the pain of appendicitis, gall-stone colic, renal colic and intense menstrual colic is not taken for that due to perforation. True gastric neuralgia is extremely rare and is not affected by food.

The severe pain in the stomach due to locomotor ataxia can be usually excluded by remembering the points of that disease.

Gall-stone colic may be misleading, but it should be remembered that here the taking of food has no influence on the pain.

Chronic ulcer and cancer may present much the same symptoms, such as pain and obstruction at the pylorus and consequent dilatation of the stomach. Pain, obstruction, emaciation, dilatation, and lastly, a mass in the region of the pylorus, make a typical picture of cancer. The gastric contents in ulcer usually shows an excess of hydrochloric acid, while the contrary is true in cancer. In duodenal ulcer the pain comes on some time after eating and is frequently stopped by the ingestion of food, whereas in gastric ulcer the pain occurs soon after eating and is relieved by vomiting.

After excluding hemorrhage from other portions of the alimentary tract, the finding of occult blood in the stools is good evidence of a gastric or duodenal ulcer.

Ulcers near the pylorus heal more slowly than those in other locations. This is undoubtedly due to the grinding action in which this portion of the stomach partakes. It has been found that about 74 per cent of simple uncomplicated ulcers yield to medical treatment and that about 13 per cent of the remaining portion die as a result of the ulcer. It is this 26 per cent of cases which at present stomach surgery is dealing with. It is this class of cases which drift around from one doctor to another in search of relief, become neurasthenic, consult peruna, etc., correspondence doctors, and Christian Science healers, at last in desperation consult the surgeon.

Operations should be performed in all cases of primary ulcer which have not been cured by six weeks of medical treatment, and in all cases of primary ulcer which have relapsed, and all cases of chronic ulcer. The one indication for treatment of this condition enumerated, is drainage of the stomach either to remove irritating contents or simply to keep irritating material from passing over the ulcer. This result is at present best obtained by the operation of gastrojejunostomy, or as it is more familiarly known as gastroenterostomy.

The operation we have been doing is "no loop method of the Mayo's." This operation in the limited number of cases presented here is certainly all that those gentlemen claim for it.

The following histories are presented in somewhat lengthy detail to again call attention to the symptoms above enumerated, and also to show why we operated:

Mr. H., age 48, locksmith, complained of pains in the stomach. **Pains** came on about twenty minutes after eating, gradually increasing in severity, and in about a year experienced a burning sensation which created a desire for hot or cold water. **Vomiting** followed the ingestion of the water as a rule, the vomitus being at first yellow, but during the past few months was often black. **Hematemesis** was suspected from this description. **Loss of weight** was to the extent of thirty pounds in last three months. **General condition** was greatly improved at intervals of two or three months during this time. **Emaciation** at present is marked, patient feeling extremely weak. Was put upon medical treatment and left apparently cured on December 12, 1906, then returned on the 19th of December, operation being performed on the 22d, the condition found being an ulcer of the pylorus. Patient left hospital with a considerable gain in weight and a relief from all symptoms, apparently well.

Mr. McQ., age 42, laborer, complained of soreness in epigastric region. **Pains** and soreness had been present about six months, the pain being more severe during past four weeks and coming on shortly after eating. About two hours after the ingestion of food pain passes away, but the soreness continues. **Vomiting** spells have been absent. **Loss of weight** is marked. **General condition** shows patient to be very weak, constipated, and urinary flow scanty. **Emaciation** is present. **Examination** shows heart action irregular, slow, and a systolic murmur present. Epigastric region tender to pressure. At **operation,** an indurated ulcer found on anterior wall of pylorus. Patient left apparently cured, pains having ceased, and returned in three days after leaving suffering from lost compensation. Died on the 5th of February from dilatation of the heart.

Mr. P., age 45, laborer, first seen in 1904, when he complained of stomach pain after eating, of variable duration, and a dull ache always present. Stomach analysis showed food well digested, no hydrochloric acid present, but lactic acid present. Re-

ceived medical treatment and left improved, but returned in March, 1907, with a complaint of **pain** in the stomach, sharp in nature, coming on about one to two hours after eating, **vomiting,** usually voluntary, always relieving pain. Food often regurgitates. Bowels loose. **Emaciation** marked. At **operation** an enlarged sentinel gland found over greater curvature of stomach near pylorus. Since operation, patient has had no pain and feels greatly relieved.

Miss G., age —, complained of vomiting and regurgitation of food, which had existed for several years and was getting worse. Can tell when bile is present in stomach, by headache, which is immediately relieved by vomiting. There is also pain in stomach relieved by ingestion of food. Troubled with eructations of gas. No blood ever vomited. Obtains relief at times by getting on knees and bending over a couch with a pillow against abdomen. Has been losing weight for past year. Has occasional periods of comfort. Also complains of gas in bowels and at times of pain in the rectum; also pain in left shoulder. Patient rather anemic and poorly nourished, and abdomen somewhat retracted. **Examination** shows general enteroptosis, superior border of stomach near umbilicus, right kidney down about to brim of pelvis; left kidney is palpable. Medical treatment was instituted for a year or more without success, when operation was decided upon. **Operation:** Incision at border of rectus and stomach explored. What appeared to be an hour-glass stomach was a dilated duodenum with a pylorus which remained permanently open and would admit three fingers. Lower down on duodenum was found three or four bands of peritoneum which were apparently constricting the bowel and causing a dilatation of the duodenum and in turn the pylorus. Constricting bands were loosened and abdomen closed. Patient did well for a few days, when the wound became infected, necessitating removal of the sutures. Patient had a severe vomiting seizure that night and wound opened up with a prolapse of what was apparently a loop of bowel. This was replaced and the wound eventually healed, but the former symptoms were much aggravated and patient gradually grew worse. A month from time of first operation, incision was made in the medium line and it was then found that instead of bowel, a portion of the stomach had prolapsed into the wound of the former operation. A gastroenterostomy was rapidly done and the patient rallied well, but died three days later from exhaustion. No post mortem was held.

Mr. O., age 47, a painter, complained of **pain** for past three months in epigastric region, sharp in character, occurring from twenty to sixty minutes after eating; also during the night when it was most severe; if diet is soft and liquid the pains are lessened. Has had **vomiting** spells, when the pain was relieved; vomited blood three months ago, black in color. **Loss of weight** has been twenty pounds in last three months. Ten years ago weight was 210, but at present is about 125 pounds. Has used alcoholic liquors and tobacco to excess. **Examination:** Is greatly emaciated; cachectic; mucous membranes anemic; heart sounds are irregular, weak and intermittently accentuated. Abdominal palpation shows greatest point of tenderness to be five and one-half inches above the umbilicus in the median line. Head zone just to right of said point. At operation, carcinoma was found, saddle-shaped, in lesser curvature near pylorus.

Mrs. T., age 34, housewife. First seen two years ago (1904), complaining of indefinite stomach **pains,** eructations of gas and indigestion. After gastric lavage and analysis of stomach contents, was put on medical treatment. Was seen again in 1906, when she complained of stomach **pain,** more severe and sharp in character, occurring within an hour after eating, often relieved by the ingestion of food, but soon returning. **Vomited** blood, black in character, followed by black stools, and in three days (one day before the operation) vomited blood a second time. Is constipated, suffers from headache and vertigo and has lost a great deal of weight. Had chlorosis when eighteen years old. At **operation** no indurated ulcer found. Since operation patient has gained in weight, has no more pains, but headaches still continue.

Mr. R., age 65, complained of severe **pain** in the stomach, for past three months coming on shortly after meals. **Vomited** frequently, often vomiting the contents of two meals, no blood being found in the vomitus. Was very weak and had been losing weight for several months. Was anemic. At operation, carcinoma was found at the pylorus, for which pylorectomy and subsequent gastroenterostomy was performed. Died eleven days after operation.

Miss M., age 60, cook, complained of pain in the stomach, loss of weight and diarrhea. About two years ago had a severe attack of **pain** in the stomach region lasting about three weeks. **Vomiting** did not occur. One year ago pain recurred in the stomach and over the abdomen, followed in three months by **vomiting** spells which have continued ever since. No hematemesis. Has lost much weight. Appetite almost gone. Pain comes on mostly at night. Patient much emaciated, very anemic, tongue coated; hydrochloric acid found in stomach contents. At **operation,** carcinoma found on the anterior wall of pylorus.

Mr. N., age 25, laborer, complained of pain in the stomach, vomiting, indigestion, dark red stools. Present illness began four years ago with indigestion and frequent vomiting attacks, and pain in stomach. Pain had no special relation to ingestion of food. At times stools were red in color. Frequently **vomits** blood. No loss of weight. Patient not cachectic, tongue coated, and a slight tenderness over epigastrium. At **operation** an indurated ulcer found on anterior wall of pylorus.

Mr. L., age 62, farmer, complained of indigestion and loss of weight and strength. Was perfectly well up to ten years ago. Ten years ago patient began to have indigestion, continuing ever since. **Vomiting** began six months ago, occurring nearly every morning after breakfast; in character like coffee-grounds. Three days ago vomited blood. **Pain** has been present for years, but has increased greatly during last six months; always localized in the stomach region and is always greater after meals. **Loss of weight** is marked, thirty pounds being lost in past six months. Patient feels very weak. Bowels have tendency to diarrhea; no blood in stools. Emaciation marked. Tongue coated. Appears anemic. Blood examination shows hemoglobin 35 per cent, red cells 3,000,000, white cells 6,840. Gastric contents showed lack of hydrochloric acid, many tissue cells present, no Boas-Opler bacilli present, many yeast cells present. **Operation** performed on January 27, 1906, by Dr. Huntington of San Francisco. Carcinoma on anterior wall of the pylorus found. Patient died January 4, 1907.

Mrs. M., married, two children. Complained of pain in the stomach. Excellent health up to a year ago, when she had an attack of pain in the stomach after eating, which has continued ever since, except for an interval of three weeks occurring about three months ago. Has lost thirteen pounds in two months. The pain comes on about one-half hour after eating and lasts from one to three hours. **Vomiting** relieves the pain, and on one occasion appeared like a dark thick syrup, the stool at the same time having a similar appearance. Is very nervous and wishes to die if she cannot obtain relief. Examination shows Head zone to left of median line extending almost to anterior axillary line. No palpable tumor. Some tenderness in region of the pylorus. **Operation** showed a small duodenal ulcer involving the pylorus. Was entirely relieved of the symptoms, two weeks later leaving the hospital and four weeks after the operation was out of bed. At

present is gaining weight and health and has had no return of symptoms.

Looking back over the histories of the cases presented here this evening, let us see what has been gained and what has not.

One patient died without any relief three days after the gastroenterostomy, which was performed one month after another operation, with the patient in a condition of extreme exhaustion. The operation was undertaken purely with the hope of being able to do something, as it was recognized that death would take place in a very few days. There is a question that if the gastroenterostomy had been performed at first in the face of the complete relaxation of the pylorus, whether the symptoms would have been cleared up.

The patient on whom a pylorectomy and subsequent gastroenterostomy was done, died eleven days after operation from exhaustion caused by inability to swallow, and also to retain any rectal nourishment. No autopsy was obtained and can offer no solution of the trouble. For the time being he was entirely relieved of the symptoms for which the operation was undertaken.

The patient operated upon by Dr. Huntington had an extensive carcinoma of the pylorus and had one year with entire relief. Death then occurred from an old endocarditis. At autopsy no metastasis of the carcinoma was found, and also that the growth had not extended during the year. A strand of celluloid linen which had been used for the inner line of sutures was found hanging to the anastomosis.

One patient who had a bad heart lesion and who collapsed twice on the table, obtained entire relief, left the hospital against our advice and worked one day. He returned two days later with a dilatation of the heart and lost compensation, and died eight days afterwards.

All the cases except one obtained complete relief from pain, which was *the* symptom which led them to seek help and readily consent to operation.

Most of these cases have been diagnosed and operated upon solely by subjective symptoms, and although we have not demonstrated an indurated ulcer in each case when ulcer was suspected, the entire clearing up of the symptoms subsequent to gastroenterostomy gives sufficient evidence that our operative diagnosis of a mucous ulcer was correct.

In two of the patients their true condition was overlooked for three years and another patient for one year. If this has occurred in our limited experience there must be a great many more patients with ulcer of the stomach or duodenum with the ultimate probability of cancer, who are being treated for neuralgia of the stomach or heart, or indigestion, when if proper attention were paid to the characteristic symptoms they would be sent to a surgeon who would give them the benefit of this ingenious and comparatively safe operation.

Gastroenterostomy will not cure neurasthenia, but if it is dependent upon any of the conditions above enumerated, relief will be given.

Gastroenterostomy is essentially a drainage operation and if undertaken for the relief of symptoms which are induced by faulty drainage, you will make a most grateful patient, an admirer of the medical profession and not allow him to become a victim for quackery and a candidate for Christian Science.

OBSERVATIONS ON SPINAL ANALGESIA.*

By ALFRED NEWMAN, M. D., San Francisco.

Almost a decade has elapsed since the introduction of spinal analgesia to a waiting medical world, ever eager for the recognition of any discovery looking to greater comfort in operative surgery. Since the time when this form of anesthesia was first practised, much vicissitude has attended it, as indeed has been the common lot of almost every notable discovery in medicine.

To America must be accorded the credit of the first discovery of this principle, which however was allowed to lie dormant until re-discovered by a German. It was eagerly adopted by the French, and by them introduced to the entire medical world. Although not the discoverers, the French are really the promoters of spinal analgesia.

First reports regarding the new method were all favorable,—prematurely so; indeed, by many it was claimed that the ideal anesthetic had at last arrived. Then came the inevitable reaction. Accidents of a disagreeable character began to be reported, accompanied by a death-rate which compared unfavorably with that of chloroform or ether.

Threatened with oblivion, under these circumstances, modifications of the original method were suggested; the cocaine was dissolved in the spinal fluid, adrenalin was added; other drugs were substituted. Of the substitutes whose action next came under observation, two have sustained and survived extended test, and are in vogue at the present time: stovaine and tropa-cocaine. The former is a French synthetic and owes its great popularity largely to the patriotism of the French. It is named after its discoverer, Fourneau—French for "stove." But the use of this drug is on the decline. I have long since abandoned it in favor of tropacocaine, whose use has given much better satisfaction.

Concerning the latest substitute for Cocaine, Novocaine and Alypin, I have no personal experience, but up to the present time at least, reports of operators show them to be much inferior to tropacocaine. With the development of spinal anesthesia, we have passed through the cocaine, the stovaine and the tropacocaine eras, finally settling upon the last as the best drug thus far discovered. Others have arrived at the same conclusion and are abandoning all other drugs for the tropacocaine. The reason for this late recognition—Schwartz has used it since 1901 and has always praised it ("Munch Med: Woch" 1902. No. 4)—lay in the initial poor results it gave. This was largely due to the quality of the drug. Bier, after abandoning it, has returned to it. Our first

*Read before the San Francisco County Medical Society.